

Small Mammal Inventory of Alaska's National Parks and Preserves

Gates of the Arctic National Park and Preserve

Preliminary Summary

J. A. Cook, S. O. MacDonald, and A. M. Runck
3 September 2002

In July and August of 2002, 2 field crews from the Beringian Coevolution Project (BCP) at Idaho State University sampled the small mammal fauna at 8 base locations (Figure 1) in the Gates of the Arctic National Park and Preserve (GAAR) for a total of 221 person-days (over 12,874 trap nights of collecting effort). These localities were scattered throughout the Park in a variety of elevations and habitats.

Other participating institutions included the University of Alaska Museum (UAM), USDA National Parasite Lab, University of New Mexico, and The Finnish Forest Research Institute (Vantaa Research Centre). Personnel involved in this field effort included Amy Runck, Heikki Henttonen, Jukka Niemimaa, Juha Laakkonen, John Bender, Robert Allen, Brandy Jacobsen, and Kyndall Hilderbrandt. Also participating were John Burch, Melanie Cook, and Teri Ball from the National Park Service. Elena Potikha also participated as visiting scientist from Sikhote-Alin Zapovednik (GAAR sister-park). Logistical support was provided by the National Park Service and all voucher specimens of mammals were deposited in the University of Alaska Museum (UAM).

The specific products of this inventory include a large collection of well-prepared, well-documented, and diverse preparations of mammal specimens and associated materials (tissues, parasites, fecal samples, digestive tracts). A total of 1853 small mammal specimens (excluding embryos) comprising 18 species was archived from the 8 localities (Figures 2 and 3).

Three murid rodents (tundra vole, singing vole, and northern red-backed vole) and a shrew (montane shrew) were the most frequently sampled species (516, 466, 400, and 111 specimens, respectively), comprising over 80% of all specimens collected (Figure 4).

The findings from this study, when combined with specimen information gathered from a preliminary review of holdings in other major collections, bring the total number of documented small mammal species in GAAR to 20 of 22 potential species (Table 1), or 91% coverage.

The discovery of a tiny shrew (*Sorex yukonicus*) at Fortress Mountain, north of the crest of the Brooks Range, constitutes a new species for GAAR and is a major range extension of this poorly documented species. This inventory also extends the range of the meadow vole (*Microtus pennsylvanicus*) northward into the Park and upper Kobuk River drainage, and expands the distributions of the pygmy shrew (*S. hoyi*), montane shrew (*S. monticolus*), and cinereus shrew (*S. cinereus*). The occurrence in GAAR of collared lemming (*Dicrostonyx groenlandicus*), tundra shrew (*Sorex tundrensis*) and barren ground shrew (*Sorex ugyunak*) is now substantiated with specimens. Specimens of the Alaska marmot (*Marmota broweri*) from Fortress Mountain and Nunushuk River provided new locality records for this poorly-known and under-represented species.

Table 1. Checklist of the mammals of *Gates of the Arctic National Park and Preserve*, Alaska.
Current status: ● = present and substantiated with vouchered specimen, ○ = present or probably present but not substantiated with a voucher specimen.

INSECTIVORA - Shrews

Family **Soricidae**

- *Sorex cinereus*, cinereus shrew
- *S. hoyi*, pygmy shrew
- *S. monticolus*, montane shrew
- *S. tundrensis*, tundra shrew
- *S. ugyunak*, barren ground shrew
- *S. yukonicus*, tiny shrew

CARNIVORA - Carnivores

Family **Mustelidae**

- *Mustela erminea*, ermine
- *M. nivalis*, least weasel

RODENTIA - Rodents

Family **Sciuridae**

- *Marmota broweri*, Alaska marmot
- *Spermophilus parryii*, arctic ground squirrel
- *Tamiasciurus hudsonicus*, red squirrel

Family **Muridae**

- *Clethrionomys rutilus*, northern red-backed vole
- *Dicrostonyx groenlandicus*, collared lemming
- *Lemmus trimucronatus*, brown lemming
- *Microtus miurus*, singing vole
- *M. oeconomus*, tundra vole
- *M. pennsylvanicus*, meadow vole
- *M. xanthognathus*, taiga vole
- *Ondatra zibethicus*, muskrat
- *Synaptomys borealis*, northern bog lemming

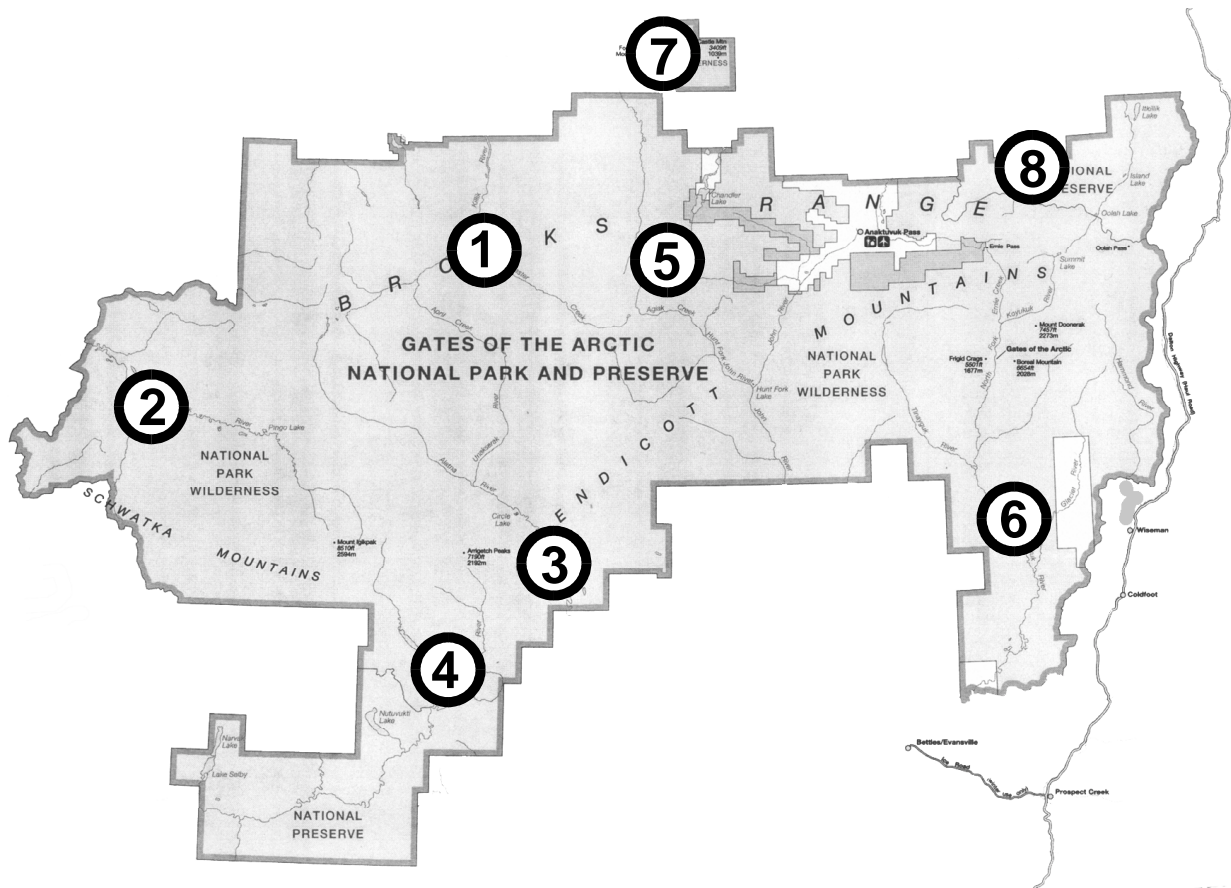
Family **Erethizontidae**

- *Erethizon dorsatum*, North American porcupine

LAGOMORPHA - Pikas & Hares

Family **Leporidae**

- *Lepus americanus*, snowshoe hare



LEGEND:

1. Lake Tulilik (68° 07'N, 154° 07'W): 11-18 July 2002
2. Lake Isiak (67° 43'N, 156° 08'W): 18-25 July 2002
3. Takahula Lake (67° 20'N, 153° 40'W): 25 July-1 August 2002
4. Walker Lake (67° 06'N, 154° 16'W): 1-8 August 2002
5. Agiak Lake (68° 04'N, 152° 56'W): 11-18 July 2002
6. North Fork Koyukuk River (67° 27'N, 150° 51'W): 18-25 July 2002
7. Fortress Mountain (68° 34'N, 152° 57'W): 27 July-2 August 2002
8. Nanushuk River (68° 16'N, 150° 39'W): 2-7 August 2002

FIGURE 1. General localities in the *Gates of the Arctic National Park and Preserve*, Alaska, sampled for small mammals in July and August 2002.

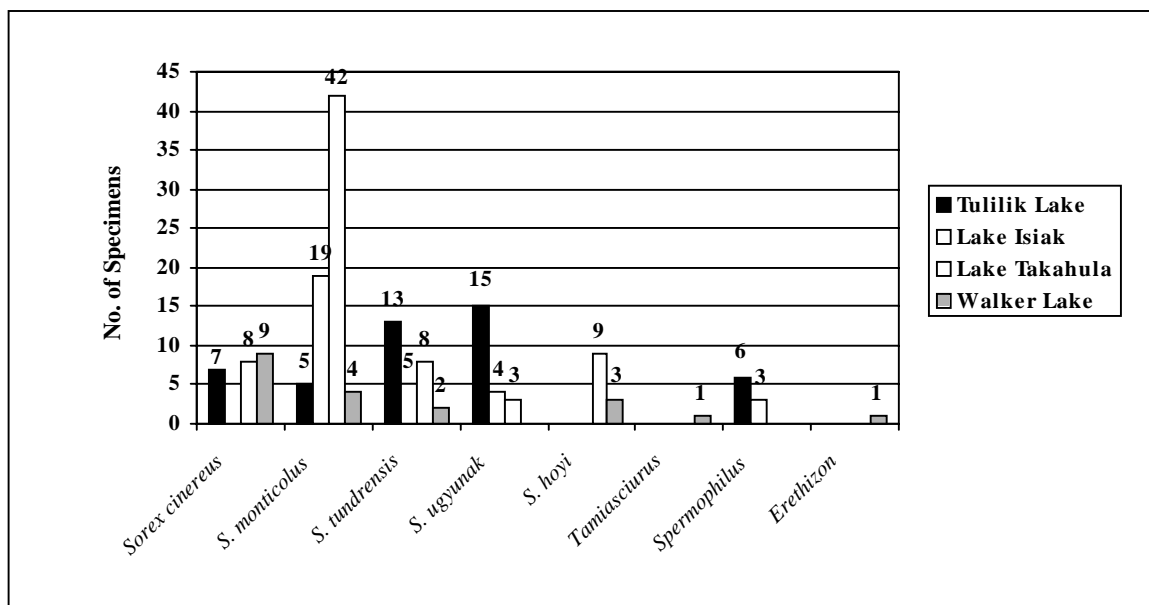


FIGURE 2a. Number of shrew, squirrel, and porcupine specimens sampled in *Gates of the Arctic NP&P*, Alaska, during field season 2002 by FIELD CREW 1.

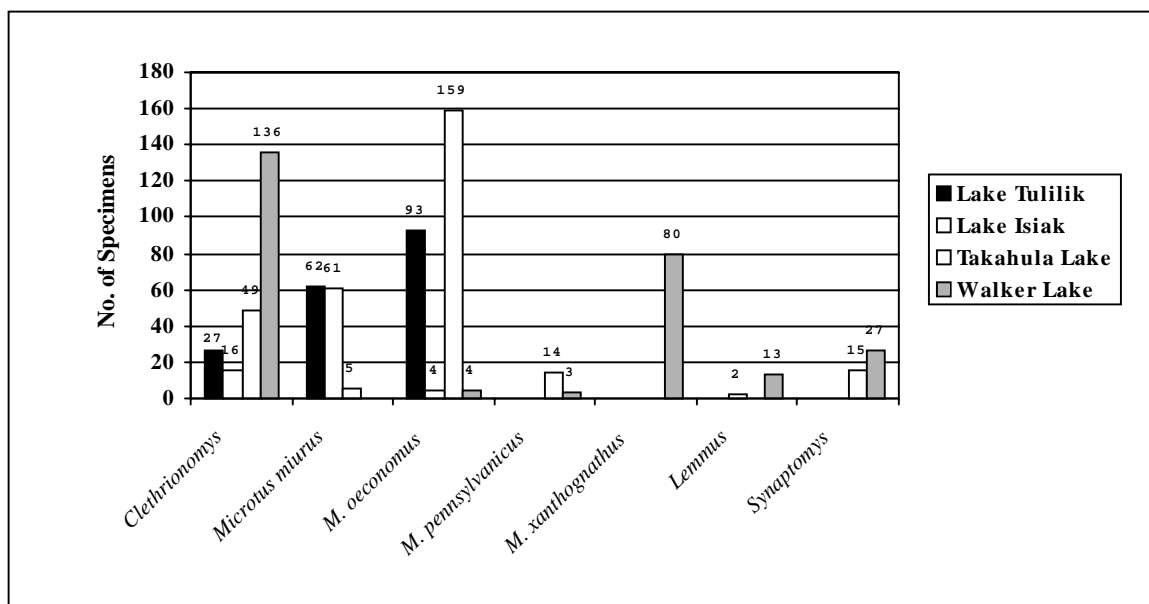


FIGURE 2b. Number of Murid rodent specimens sampled in *Gates of the Arctic NP&P*, Alaska, during field season 2002 by FIELD CREW 1.

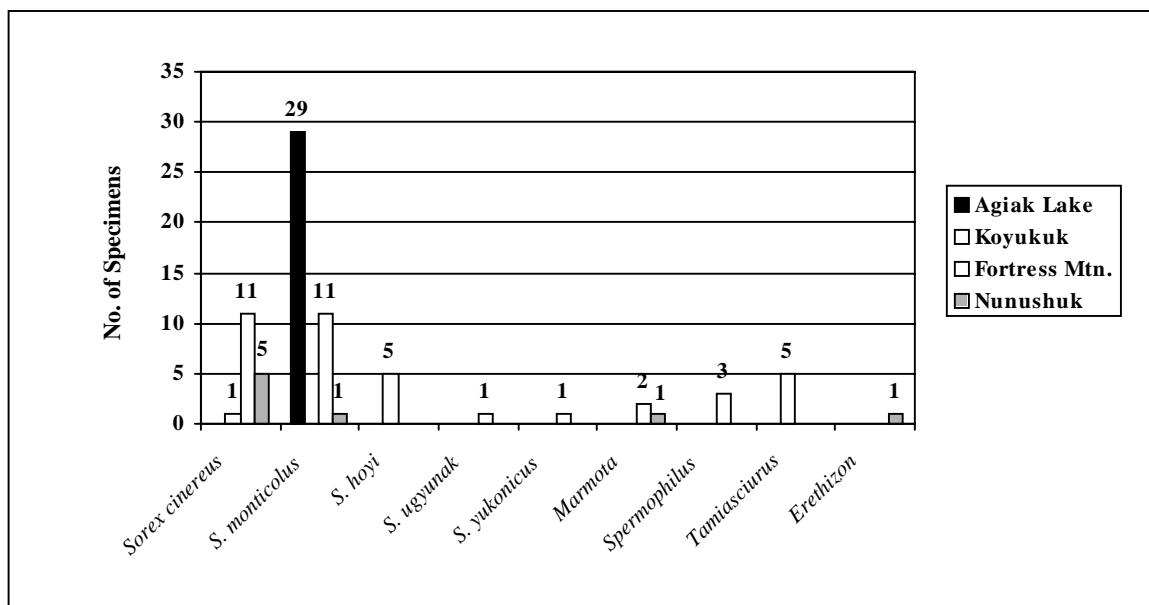


FIGURE 3a. Number of shrew, squirrel, and porcupine specimens sampled in *Gates of the Arctic NP&P*, Alaska, during field season 2002 by FIELD CREW 2.

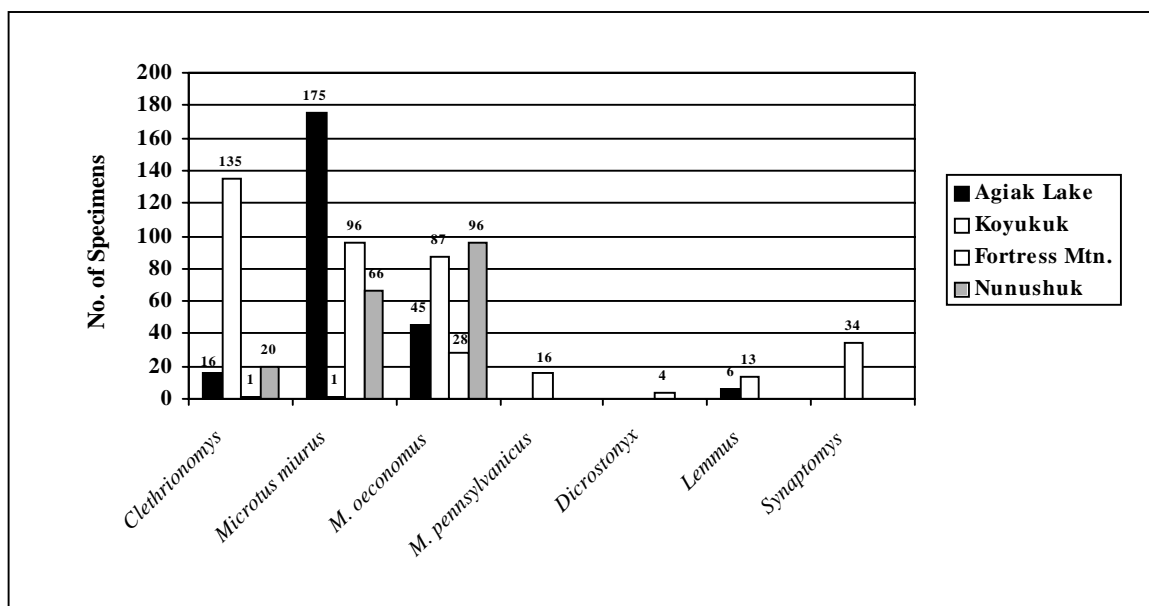


FIGURE 3b. Number of Murid rodent specimens sampled in *Gates of the Arctic NP&P*, Alaska, during field season 2002 by FIELD CREW 2.

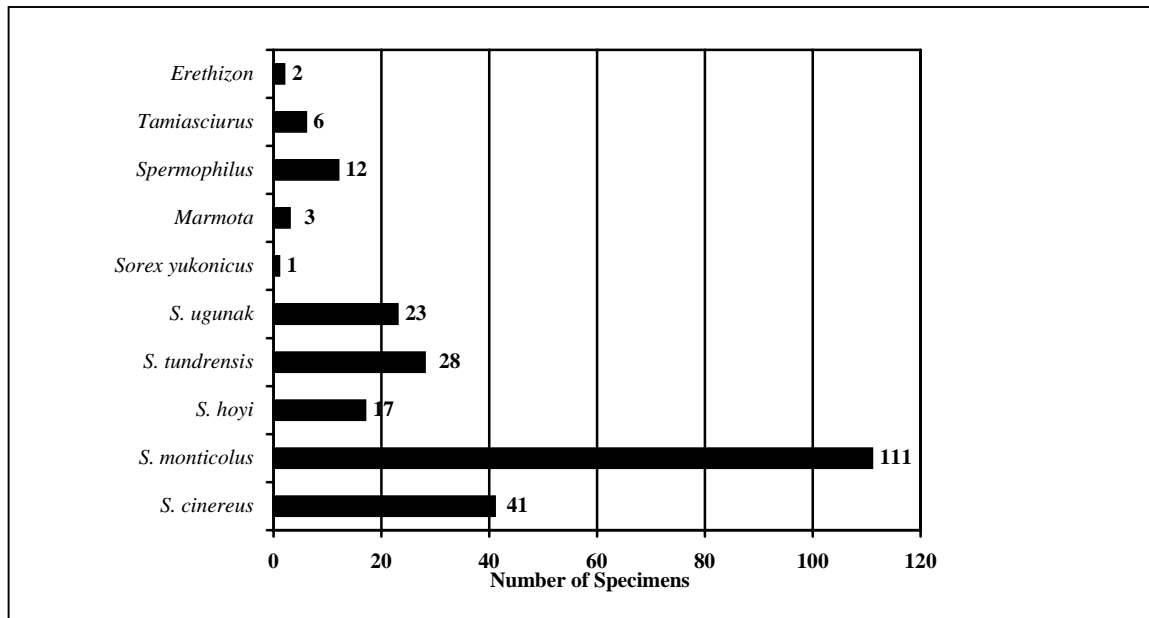


FIGURE 4a. Total number of shrew, squirrel, and porcupine specimens sampled in *Gates of the Arctic NP&P*, Alaska, during field season 2002.

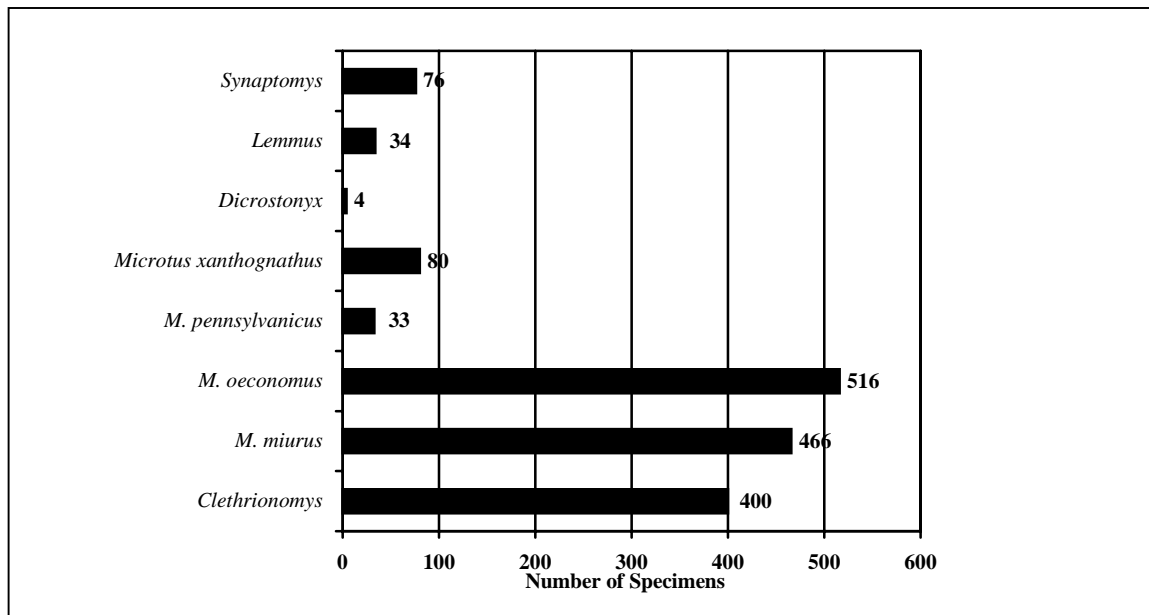


FIGURE 4b. Total number of Murid rodent specimens sampled in *Gates of the Arctic NP&P*, Alaska, during field season 2002.